Contents Volume 46, 1990

Preface 1
Using morphometric expressions for macropores to improve soil physical analyses of field soils
J. Bouma (Wageningen, The Netherlands) 3
Evaluation of constructed and natural soil macropores using X-ray computed tomography
S.H. Anderson, R.L. Peyton and C.J. Gantzer (Columbia, Mo., U.S.A.) 13
Directional saturated hydraulic conductivity and macropore morphology of a soil-saprolite sequence
P. Schoeneberger and A. Amoozegar (Raleigh, N.C., U.S.A.) 31
Preferential flow in a sandy vadose zone: 1. Field observation
K-J.S. Kung (Madison, Wisc., U.S.A.) 51
Preferential flow in a sandy vadose zone: 2. Mechanism and implications
K-J.S. Kung (Madison, Wisc., U.S.A.) 59
Effect of *Lumbricus terrestris* L. burrows on hydrology of continuous no-till corn fields
W.M. Edwards, M.J. Shipitalo, L.B. Owens (Coshocton, Ohio, U.S.A.) and L.D. Norton (West Lafayette, Ind., U.S.A.) 73
Preferential paths of flow under conventional and conservation tillage
M.S. Andreini and T.S. Steenhuis (Ithaca, N.Y., U.S.A.) 85
Unsaturated solute transport through a forest soil during rain storm events
P.M. Jardine, G.V. Wilson and R.J. Luxmoore (Oak Ridge, Tenn., U.S.A.) 103
Hydrology of a forested hillslope during storm events
G.V. Wilson, P.M. Jardine, R.J. Luxmoore and J.R. Jones (Oak Ridge, Tenn., U.S.A.) 119
Physical and chemical controls of preferred path flow through a forested hillslope
R.J. Luxmoore, P.M. Jardine, G.V. Wilson, J.R. Jones (Oak Ridge, Tenn., U.S.A.) and L.W. Zelazny (Blacksburg, Va., U.S.A.) 139
Fluid flow in partially saturated, welded–nonwelded tuff units
J.S.Y. Wang and T.N. Narasimhan (Berkeley, Calif., U.S.A.) 155
Modeling solute transport in structured soils: a review
M.L. Brusseau and P.S.C. Rao (Gainesville, Fla., U.S.A.) 169
A numerical model for preferential solute movement in structured soils
T.S. Steenhuis, J.-Y. Parlange and M.S. Andreini (Ithaca, N.Y., U.S.A.) 193
The Laplace Transform Galerkin technique for efficient time-continuous solution of solute transport in double-porosity media
E.A. Sudicky (Waterloo, Ont., Canada) 209
Use of temporal moment analysis to study reactive solute transport in aggregated porous media
A.J. Valochhi (Urbana, Ill., U.S.A.) 233
Inferences about solute transport in macroporous forest soils from time series models
G.M. Hornberger (Charlottesville, Va., U.S.A.), K.J. Beven (Lancaster, U.K.) and P.F. Germann (Bern, Switzerland) 249
Water movement through an aggregated, gravelly Oxisol from Cameroon
P.R. Anamosa, P. Nkedi-Kizza, W.G. Blue and J.B. Sartain (Gainesville, Fla., U.S.A.) 263
Effect of solute application method on preferential transport of solutes in soil
G.J. Kluitenberg and R. Horton (Ames, Iowa, U.S.A.) 283

A system for quantitative evaluation of the fertility of tropical soils (QUEFTS)
B.H. Janssen, F.C.T. Guiking, D. van der Eijk, E.M.A. Smaling, J. Wolf and H. van Reuler (Wageningen, The Netherlands) 299
Oxygen isotope composition of quartz in soils developed on late Quaternary volcanic ashes in Japan
C. Mizota (Fukuoka, Japan), M. Kusakabe and M. Noto (Tottori-ken, Japan) 319
Morphological features related to agriculture and faunal activity in three loess-derived soils in France
M.L. Thompson (Ames, Iowa, U.S.A.), N. Fedoroff and B. Fournier (Thiverval-Grignon, France) 329
Variations in chemical composition of the soil solution over a four-year period at an upland site in southwest Scotland
I.C. Grieve (Stirling, Great Britain) 351
Hydraulic conductivity and leaching of an organic saline–sodic soil
C. Kosmas and N. Moustakas (Athens, Greece) 363
Micropitting of some clay materials adjacent structural pores
L.A. Sullivan (Sydney, N.S.W., Australia) 371
Current Titles in Soil Science 377